FARM MANAGEMENT

MARKETING AND FARM BUSINESS MANAGEMENT

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Date: February, 2005

FARM MANAGEMENT

Guidelines For Estimating

Irrigated Processing Potato Costs

Production Costs based on 399 acres

Potato acreage in Manitoba has increased significantly in the last 10 years. Expansion in the French Fry processing industry has been the main driver of this increase. This expansion has placed Manitoba second only to Prince Edward Island in total area planted to potatoes. Processing acreage in Manitoba accounts for over 80% of the total acreage and results in an annual value-added in excess of $360,000,000. The balance of the acreage is divided between seed (10,500 acres) and fresh (table) production (8,000).

The following budget estimates the cost of producing processing potatoes based on a total land base of 480 acres, with certain input costs based on 420 acres and a harvested acreage of 399 acres. This is due to the trend toward the dryland corners not being planted to potatoes, where pivot irrigation is used. The figures provide an economic evaluation of processing potatoes required to cover all costs including labour and investment. Management has not been accounted for in this enterprise budget.

To estimate a cash flow budget the actual payments on principal and interest may be substituted for the fixed costs in the budget. As well, an estimate has to be made to cover family living expenses and funds required for capital purchases.

Disclaimer: This budget is only a guide and is not intended as an in-depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user. If you require assistance with developing your individual budget, please contact your local Manitoba Agriculture, Food and Rural Initiatives office.

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Irrigated Processing Potato Cost of Production - February, 2005

	Cost /Acre	Cost /CWT	Your Cost
A. Operating Costs			
1.01 Seed & cutting	$184.80	$0.79	
1.02 Seed treatment	$83.12	$0.35	
1.03 Fertilizer	$120.75	$0.51	
1.04 Herbicides	$51.58	$0.22	
1.05 Fungicide & Insecticide	$189.47	$0.81	
1.06 Fuel Costs-Field	$54.01	$0.23	
1.07 Trucking Costs	$39.88	$0.17	
1.08 Irrigation Fuel	$32.48	$0.14	
1.09 Maintenance & Repairs	$177.94	$0.76	
1.10 Custom Work & Rental	$83.58	$0.36	
1.11 Hired Labour	$169.72	$0.72	
1.12 Insurance	$75.11	$0.32	
1.13 Utilities	$30.08	$0.13	
1.14 Other Costs	$74.59	$0.32	
Subtotal Operating Costs	$1,367.11	$5.83	
1.15 Interest on Operating	$37.60	$0.16	
Total Operating Costs	**$1,404.70**	**$5.99**	
B. Fixed Costs			
2.01 Own Land Cost	$80.00	$0.34	
2.02 Depreciation	$301.30	$1.28	
2.03 Investment	$104.05	$0.44	
Total Fixed Costs	**$485.35**	**$2.06**	
C. Labour			
3.01 Own Labour	**$98.00**	**$0.42**	
Total Cost of Production	**$1,988.06**	**$8.47**	

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Assumptions

1. This budget outlines the cost of producing processing potatoes under irrigated conditions and is based on a pivot system with a river as the water source. (see back page for details)

2. A potato land base of 399 harvested acres was assumed in developing this budget. The cost of production does not include the cost of maintaining the corners not under irrigation. The crop rotation was based on growing potatoes no more than 1 in 3 years

3. Total gross yield per acre was assumed at 276 cwt/acre with marketable yield estimated at 234.6 cwt/acre. Assumed contract size of 100,000 cwt.

4. Crop Insurance is based on premiums for 2005 at the 80% coverage rate.

5. All trucking operations related to marketing of processed potatoes were assumed to be custom hauled to the processors. A rate applicable to hauling potatoes approximately 100 miles was assumed.

Irrigated Potato Cost of Production Worksheet

A. Operating Costs				Your Cost
1.01 Seed & Cutting Cost (Russet Burbank)				
Seed		14	cwt/acre	
	x	$11.70	$/cwt	
	=	$163.80	$/acre	
Cutting		14	cwt/acre	
	x	$1.50	$/cwt	
	=	$21.00	$/acre	
Total	**=**	**$184.80**	**$/acre harvested**	
1.02 Treatment Cost				
		$1.50	$/cwt fungicide	
	+	$4.14	$/cwt insecticide	
	x	14	cwt/acre	
	=	**$78.96**	**$/acre seeded**	
	x	**420**	**acres seeded**	
	÷	**399**	**acres harvested**	
	=	**$83.12**	**$/acre harvested**	

1.03 Fertilizer

Nitrogen		120	lbs/acre	
	x	$0.40	$ / lb	
	=	$48.00	$/acre	
Phosphate		90	lbs/acre	
	x	$0.28	$ / lb	
	=	$25.20	$/acre	
Potash		175	lbs/acre	
	x	$0.175	$ / lb	
	=	$30.63	$/acre	
Sulfur		25	lbs/acre	
	x	$0.28	$ / lb	
	=	$6.88	$/acre	
Micro	=	$4.00	$/acre	
Total	**=**	**$114.71**	**$/acre**	
	x	**420**	**acres fertilized**	
	÷	**399**	**acres harvested**	
	=	**$120.75**	**$/acre harvested**	

1.04 Herbicide

Preplant	$5.00	$/acre	
Post emergent	$44.00	$/acre	
Total	**$49.00**	**$/acre**	
x	**420**	**acres sprayed**	
÷	**399**	**acres harvested**	
=	**$51.58**	**$/acre harvested**	

1.05 Fungicide & Insecticide

Contact Fungicide	11	number applications	
x	1	kg/acre	
x	$10.00	$/kg	
=	$110.00	$/acre	
Systemic Fungicide	2	number applications	
x	1	kg/acre	
x	$25.00	$/kg	
=	$50.00	$/acre	

Insecticide		2	number applications
	x	1	kg/acre
	x	$10.00	$/kg
	=	$20.00	$/acre
Total	**=**	**$180.00**	**$/acre**
	x	**420**	**acres sprayed**
	÷	**399**	**acres harvested**
	=	**$189.47**	**$/acre harvested**

1.06 Fuel Costs

a) Field Fuel Costs

	Capacity ac./hr.	TIME hr./ac.	FUEL $/ac.
Harrow	30.00	0.0333	$0.65
Rotera	1.90	0.5263	$12.31
Cultivate	18.50	0.0000	$0.00
Plant	5.70	0.1754	$3.42
Spray	36.50	0.0822	$1.60
Cultivate	9.50	0.1053	$2.05
Hilling	11.40	0.1754	$3.42
Fertilize	30.00	0.0333	$0.65
Harvest	2.40	0.4167	$9.75
Tandem Disk	13.50	0.0741	$1.73
Total		1.6221	$35.58
	acres worked		**420**
	acres harvested		**399**
	$/acre harvested		**$37.45**

b) Truck Fuel Costs - from field to storage

276		gross yield (cwt)/ac.
=	13.8	tons/ac.
÷	12.5	truck capacity (tons)
=	1.104	trips/acre
x	15	distance/trip (miles)
=	16.56	total miles/acre
÷	2.5	fuel consumption (miles/gal)
=	6.624	gallons required fuel
x	$0.55	fuel cost ($/litre)
Field to Storage Costs =	$16.56	field to storage fuel cost
Field Costs =	$37.45	field costs
Total Fuel Costs =	**$54.01**	**$/acre harvested**

1.07 Trucking Costs

	234.6	net yield/acre	
x	$0.17	net trucking rate/cwt	
=	**$39.88**	**$/acre harvested**	

1.08 Irrigation Costs

	72	hours for .75 inches	
=	96	hours for 1.0 inches	
x	5	inches water applied	
x	$9.00	hourly pumping costs	
x	3	number of pivots	
÷	399	acres	
=	**$32.48**	**$/acre harvested**	

1.09 Maintenance & Repairs

	$32,000	machinery	
+	$17,000	trucks	
+	$7,000	potato storage	
+	$5,000	other buildings	
+	$10,000	irrigation	
=	$71,000	total	
÷	399	acres	
=	**$177.94**	**$/acre harvested**	

1.10 Custom Work & Rental

	$0	desiccant	
+	$0	sprout control	
+	$31,458	spraying	
+	$1,890	fertilizer	
=	$33,348	total	
÷	399	acres	
=	**$83.58**	**$/acre harvested**	

1.11 Hired Labour Costs

	$2,520	field preparation	
+	$4,200	seeding	
+	$4,200	spray & cultivate	
+	$35,798	harvest	
+	$4,200	irrigation	
+	$16,800	storage	
=	$67,718	total cost	
÷	399	acres	
=	**$169.72**	**$/acre harvested**	

1.12 Insurance

	$5,107	hail insurance
+	$14,871	crop insurance
+	$4,000	content insurance
+	$2,500	trucks
+	$3,492	bldgs & equip
=	$29,970	total insurance
÷	399	acres
=	**$75.11**	**$/acre harvested**

1.13 Utilities

	$9,500	hydro
+	$0	heating fuels
+	$2,500	telephone
=	$12,000	total utilities
÷	399	acres
=	**$30.08**	**$/acre harvested**

1.14 Other Costs

	$5,000	accounting & legal
+	$2,000	membership
+	$11,760	crop consulting
+	$7,000	property taxes
+	$2,000	shop supplies
+	$2,000	other costs
=	$29,760	total miscellaneous
÷	399	acres
=	**$74.59**	**$/acre harvested**

1.15 Interest on Operating Costs

(Operating interest is charged on one-half the sub-total operating costs)

	$1,367.11	operating costs
÷	2	average
=	$683.55	average value
x	5.5%	operating interest
=	**$37.60**	**$/acre harvested**

Capital Investment

Land Value

Own land 480 ac. @ $2000/ac	**$960,000**

Storage Facilities (120,000 cwt)

Building & Climate Control ($6.00/cwt)	$720,000
Equipment (bobcat,pilers,etc.)	$120,000
Workshop	$40,000
Total Storage Costs	**$880,000**

Irrigation System

River pump station	$74,000
Booster pump station	$42,000
Pipeline	$171,000
Pivots & generators	$240,000
Total Irrigation Costs	**$527,000**

Machinery & Equipment

Tractors (assumed 2)	$160,000
Trucks	$125,000
Digger & Windrowers	$95,000
Planter	$45,000
Sprayer	$35,000
Tillage Equipment	$50,000
Miscellaneous	$10,000
Total Machinery & Equipment Costs	**$520,000**

Total Capital Investment	**$2,887,000**

B. Fixed Costs

2.01 Land Costs

	$2,000	$/acre	
x	4.0%	investment rate	
=	**$80.00**	**$/acre harvested**	

2.02 Depreciation

Original Value - Salvage Value
Useful life

Storage Facilities			
	$880,000	original value	
-	$44,000	salvage value	
÷	20	useful life (yrs.)	
÷	399	total acres	
=	$104.76	$/acre harvested	
Machinery & Equipment			
	$520,000	original value	
-	$52,000	salvage value	
÷	10	useful life (yrs.)	
÷	399	total acres	
=	$117.29	$/acre harvested	
Irrigation System			
	$527,000	original value	
-	$52,700	salvage value	
÷	15	useful life (yrs.)	
÷	399	total acres	
=	$79.25	$/acre harvested	
Total =	**$301.30**	**$/acre harvested**	

2.03 Investment Cost

Original Value + Salvage Value X Investment Rate
2

Storage Facilities

	$880,000	original value	
+	$44,000	salvage value	
÷	2	average value	
x	4.0%	Investment rate	
÷	399	total acres	
=	$46.32	$/acre harvested	

Machinery & Equipment

	$520,000	original value	
+	$52,000	salvage value	
÷	2	average value	
x	4.0%	Investment rate	
÷	399	total acres	
=	$28.67	$/acre harvested	

Irrigation System

	$527,000	original value	
+	$52,700	salvage value	
÷	2	average value	
x	4.0%	Investment rate	
÷	399	total acres	
=	$29.06	$/acre harvested	
Total =	**$104.05**	**$/acre harvested**	

C. Own Labour Costs

	7	hours/acre	_____
x	$14.00	$/hour	_____
=	**$98.00**	**$/acre harvested**	_____

For more information contact your local Manitoba Agriculture, Food and Rural Initiatives office

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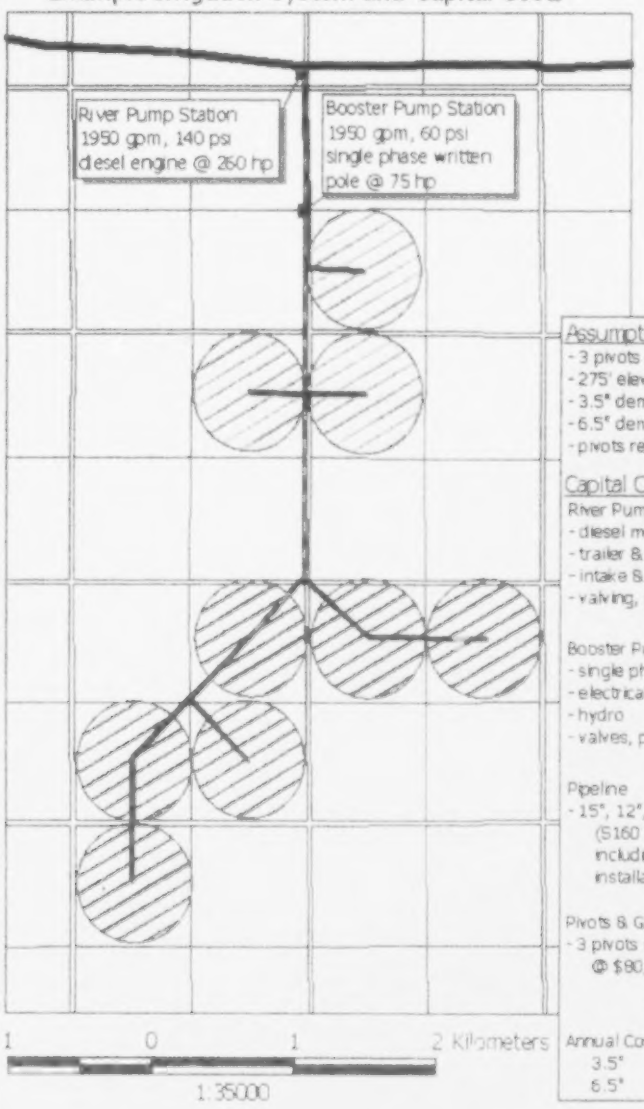
Example Irrigation System and Capital Costs



Legend

- Proposed Mainline Pipeline (15", 12" & 10")
- Proposed Lateral Pipeline (8")
- Proposed Pivots (3 total)
- Water
- Quarter Section Boundary
- River Pump Station
- Booster Pump Station

Assumptions

- 3 pivots @ 650 USgpm
- 275' elevation rise from river to booster
- 3.5" demand average year (330 hours pumping)
- 6.5" demand peak year (610 hours pumping)
- pivots require 35 psi at inlet

Capital Costs

River Pump Station (260 hp)		
- diesel motor & pump	$36,000	
- trailer & fuel tank	$ 7,500	
- intake & screen	$19,000	
- valving, piping, controls	$11,500	
		$ 74,000
Booster Pump Station (75 hp)		
- single phase motor & pump	$21,000	
- electrical controls	$10,000	
- hydro	$ 0	
- valves, piping	$11,000	
		$ 42,000
Pipeline		
- 15", 12", 10" & 8" PIP (S160 to S80) including valves and installation		$171,000
Pivots & Generators		
- 3 pivots c/w diesel generators @ $80,000 each		$240,000
Total Capital Cost		$527,000
Annual Cost (power only)		
3.5"		$ 9,100
6.5"		$16,000

Canada

PFRA ARAP